Flex Your Power Energy Challenge

Science Standards Correlation

Grade Level	Curriculum	Standard
Fourth Grade	Physical Science	1. Electricity and magnetism are related effects that have many useful applications in everyday life.
		1g. Students know electrical energy can be converted to heat, light, and motion.
	Life Science	2. All organisms need energy and matter to live and grow.
		2a. Students know plants are the primary source of matter and energy entering most food chains.
	Investigation and Experimentation	6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the Life, Earth, and Physical strands, students should develop their own questions and perform investigations. Students will:
		6c. Formulate and justify predictions based on cause and effect relationships.
		6d. Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
		6e.Construct and interpret graphs from measurements.

Fifth Grade	Physical Science	1. Elements and their combinations account for all the varied types of matter in the world.
		1c. Students know metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu), silver (Ag), and gold (Au), are pure elements; others, such as steel and brass, are composed of a combination of elemental metals.
	Investigation and Experimentation	6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the Life, Earth and Physical strands, students should develop their own questions and perform investigations. Students will:
		6a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.
		6c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.
		6d. Identify the dependent and controlled variables in an investigation
		6e. Identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.
		6f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
		6g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
		6h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
		6i. Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

Sixth Grade	Earth Science	3. Heat moves in a predictable flow from warmer objects to cooler objects until all the objects area the same temperarture. As a basis for understnding this concept:
		3a. Students know energy can be carried from one place to another by heat flow or by waves, including water, light and sound waves, or by moving objects.
		3b. Students know that when fuel is consumed, most of the energy released becomes heat energy.
		3c. Students know heat flows in solids by conduction (which involves no flow of matter) and in fluids by conduction and by convection (which involves flow of matter).
		3d. Students know heat energy is also transferred between objects by radiation (radiation can travel through space).
		4. Many phenomena on Earth's surface are affected by the transfer of energy through radiation and convection currents. As a basis for understanding this concept:
		4a. Students know the sun is the major source of energy for phenomena on Earth's surface; it powers winds, ocean currents, and the water cycle.
		4b. Students know solar energy reaches Earth through radiation, mostly in the form of visible light.
		4c. Students know heat from Earthís interior reaches the surface primarily through convection.
		4d. Students know convection currents distribute heat in the atmosphere and oceans.
		4e. Students know differences in pressure, heat, air movement, and humidity result in changes of weather.
		6. Sources of energy and materials differ in amounts, distribution, usefulness, and the thime required fore their formations. Asa basis for understanding this concept:
		6a. Students know the utility of energy sources is determined by factors that are involved in converting these sources to useful forms and the consequences of the conversion process.
		6b. Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.
	Investigation and Experimentation	7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should

		develop their own questions and perform investigations.
		7b. Students select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
		7c. Students construct appropriate graphs from data and develop qualitative statements about the relationships between variables.
		7d. Students communicate the steps and results from an investigation in written reports and oral presentations.
		7e. Students recognize whether evidence is consistent with a proposed explanation.